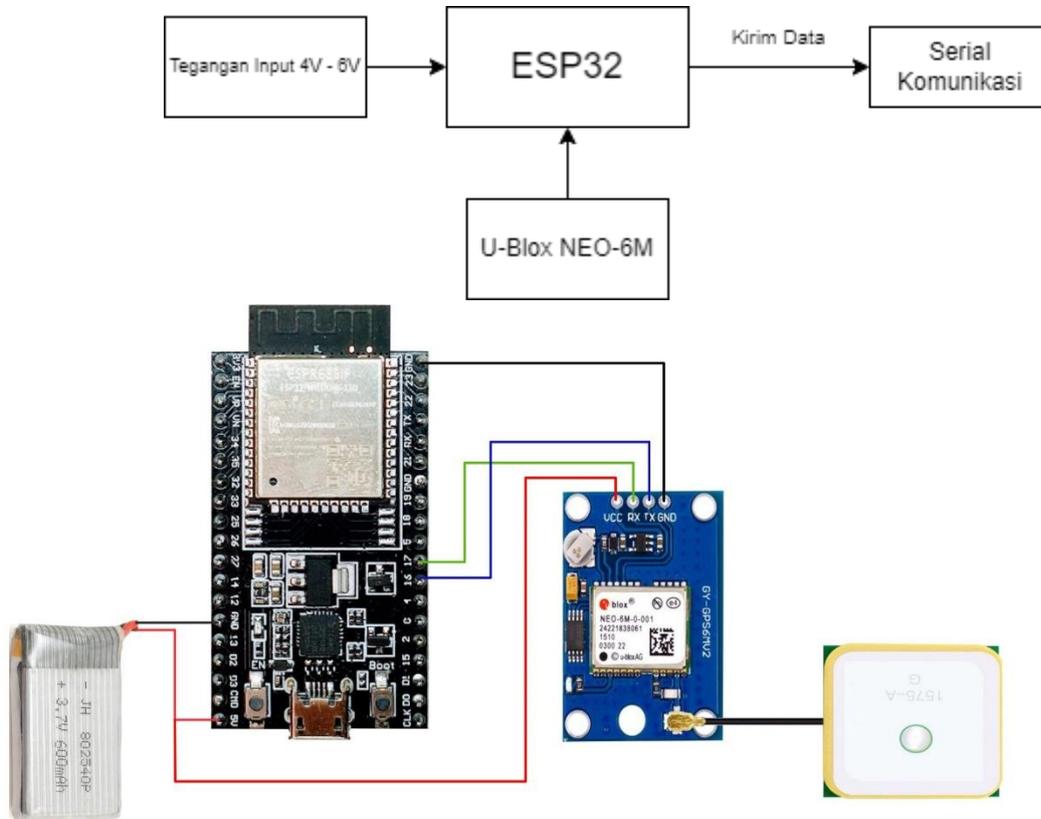
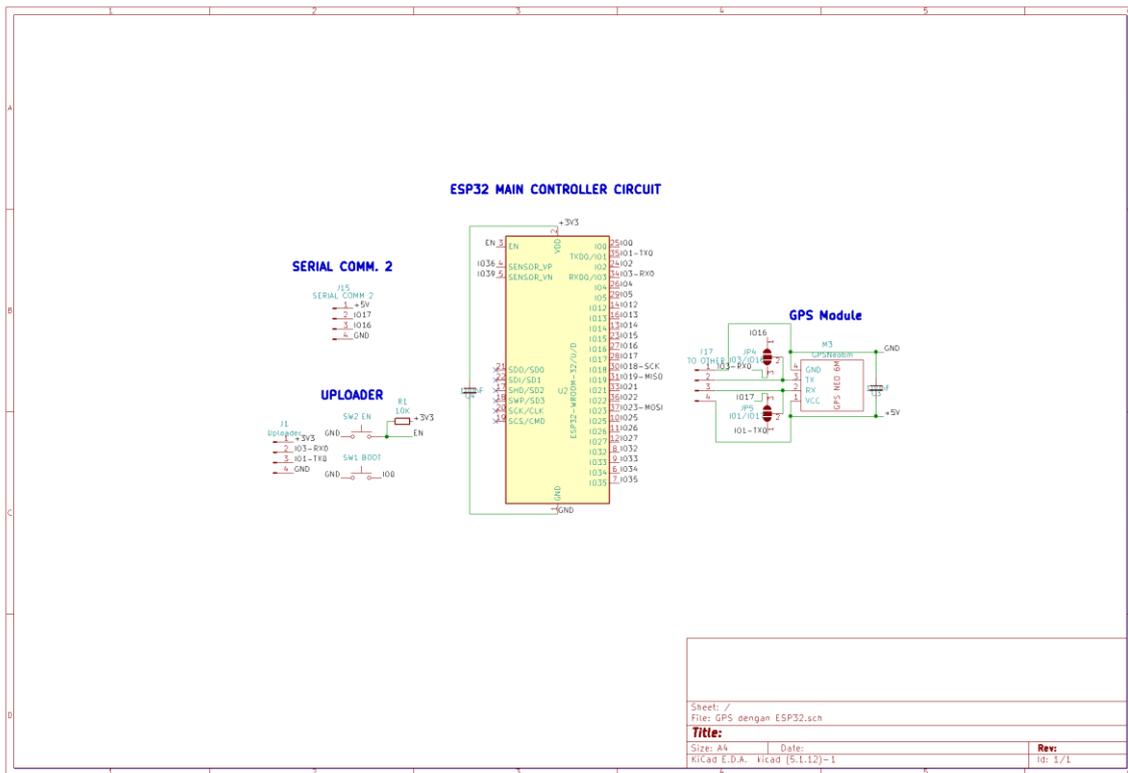


# Monitoring GPS





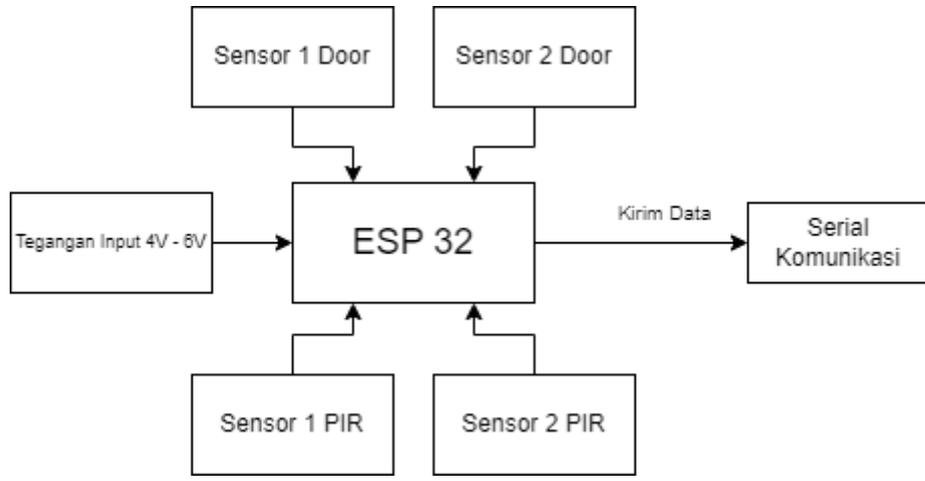
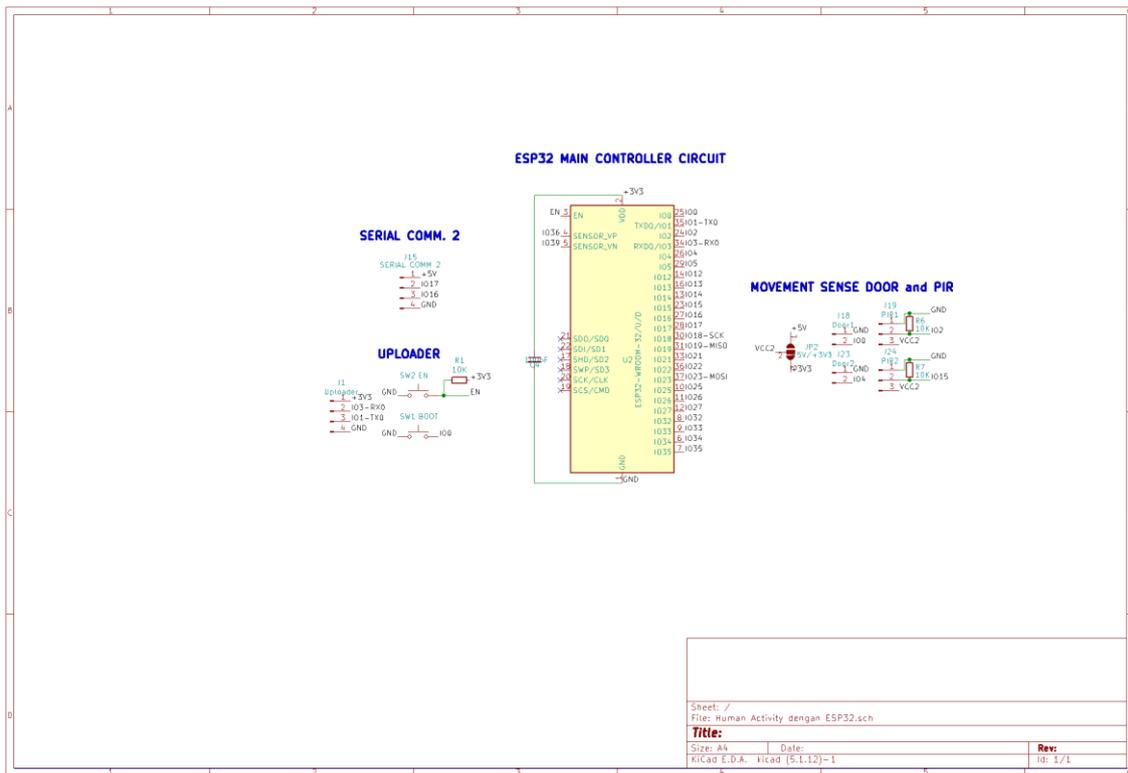
## AksesGPSNeo6M

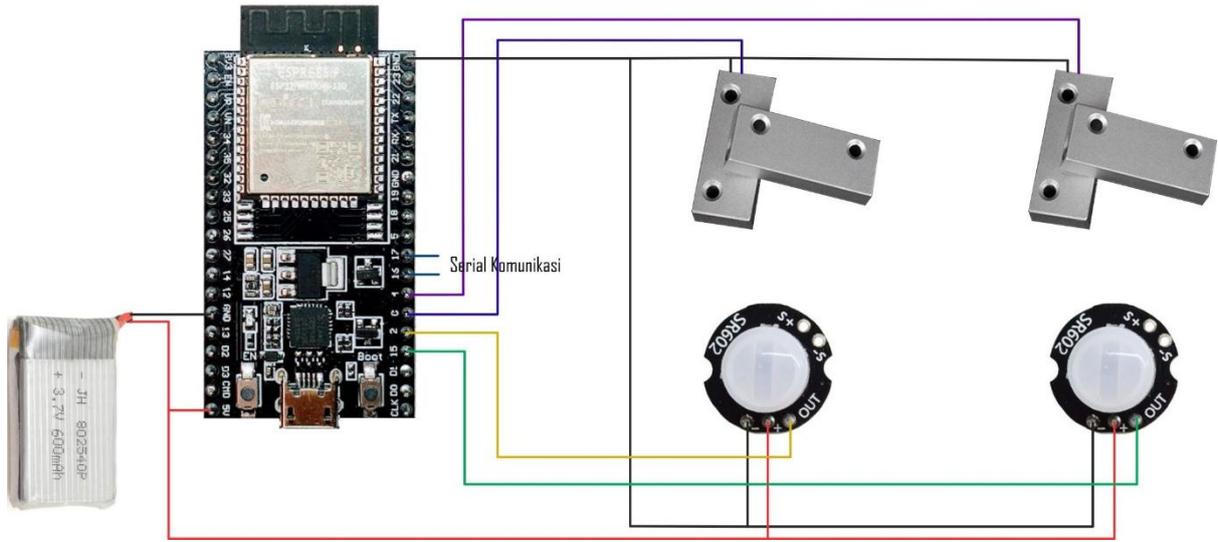
```

1  #include <TinyGPSPlus.h>
2
3  // The TinyGPSPlus object
4  TinyGPSPlus gps;
5
6  long lati, lon;
7  float CorrectLat, CorrectLong;
8  int hari, bulan, tahun, jam, menit, detik;
9  double kee;
10 String dataGPS;
11
12 void setup() {
13   Serial.begin(115200);
14   Serial2.begin(9600);
15   delay(3000);
16 }
17
18 void loop() {
19   //updateSerial();
20   while (Serial2.available() > 0)
21     if (gps.encode(Serial2.read()))
22       displayInfo();
23   if (millis() > 5000 && gps.charsProcessed() < 10){
24     Serial.println(F("No GPS detected: check wiring."));
25     while (true);
26   }
27 }
28
29 void displayInfo(){
30   // Serial.print(F("Location: "));
31   if (gps.location.isValid()){
32     Serial.print("Lat:");
33     Serial.print(gps.location.lat(), 8);
34     Serial.print(F(", "));
35     Serial.print(" Lng:");
36     Serial.print(gps.location.lng(), 8);
37   }
38   if (gps.date.isValid()){
39     gps.encode(Serial1.read());
40     tahun = gps.date.year(); Serial.print(" YYYY-MM-DD : ");Serial.print(tahun);
41     bulan = gps.date.month(); Serial.print("-"); Serial.print(bulan);
42     hari = gps.date.day(); Serial.print("-"); Serial.print(hari);
43     kee = (gps.speed.kmph());
44     Serial.print(" SPEED : "); Serial.print(gps.speed.kmph());
45   }
46   if (gps.time.isValid()){
47     if (gps.time.hour()>=17){jam = gps.time.hour()-17;}
48     else if ( gps.time.hour()<17){jam = gps.time.hour()+7;}
49     Serial.print(" Waktu - "); Serial.print(jam);
50     // Minute (0-59) (u8)
51     menit = gps.time.minute(); Serial.print(":"); Serial.print(menit);
52     // Second (0-59) (u8)
53     detik = gps.time.second(); Serial.print(":"); Serial.println(detik);}
54   else{Serial.println(F("INVALID"));}
55 }
56
57
58 void updateSerial(){
59   // delay(500);
60   while (Serial.available()){
61     Serial2.write(Serial.read()); //Forward what Serial received to Software Serial Port
62   }
63   while (Serial2.available()){
64     Serial.write(Serial2.read()); //Forward what Software Serial received to Serial Port
65   }
66 }

```

# Monitoring Human Activity





```
PIR_Sensor | Arduino 1.8.19
File Edit Sketch Tools Help
PIR_Sensor §
1 int ledPin = 12;
2 int inputPin = 19;
3 int pirState = LOW;
4 int val = 0;
5
6 void setup() {
7   pinMode(ledPin, OUTPUT);
8   pinMode(inputPin, INPUT);
9   Serial.begin(9600);
10 }
11
12
13 void loop() {
14   val = digitalRead(inputPin);
15   if (val == HIGH) {
16     digitalWrite(ledPin, HIGH);
17     if (pirState == LOW) {
18       Serial.println("Motion detected!");
19       pirState = HIGH;
20     }
21   } else {
22     digitalWrite(ledPin, LOW);
23     if (pirState == HIGH) {
24       Serial.println("Motion ended!");
25       pirState = LOW;
26     }
27   }
28 }
```

ESP32 Dev Module, Disabled, Default 4MB with spiffs (1.2MB APP)/ 5MB SPIFFS, 240MHz (WiFi/BT), QIO, 80MHz, 4MB (32MB), 921600, Core 1, Core 1, None, Disabled on COM3

```
Magnetic_Door | Arduino 1.8.19
File Edit Sketch Tools Help

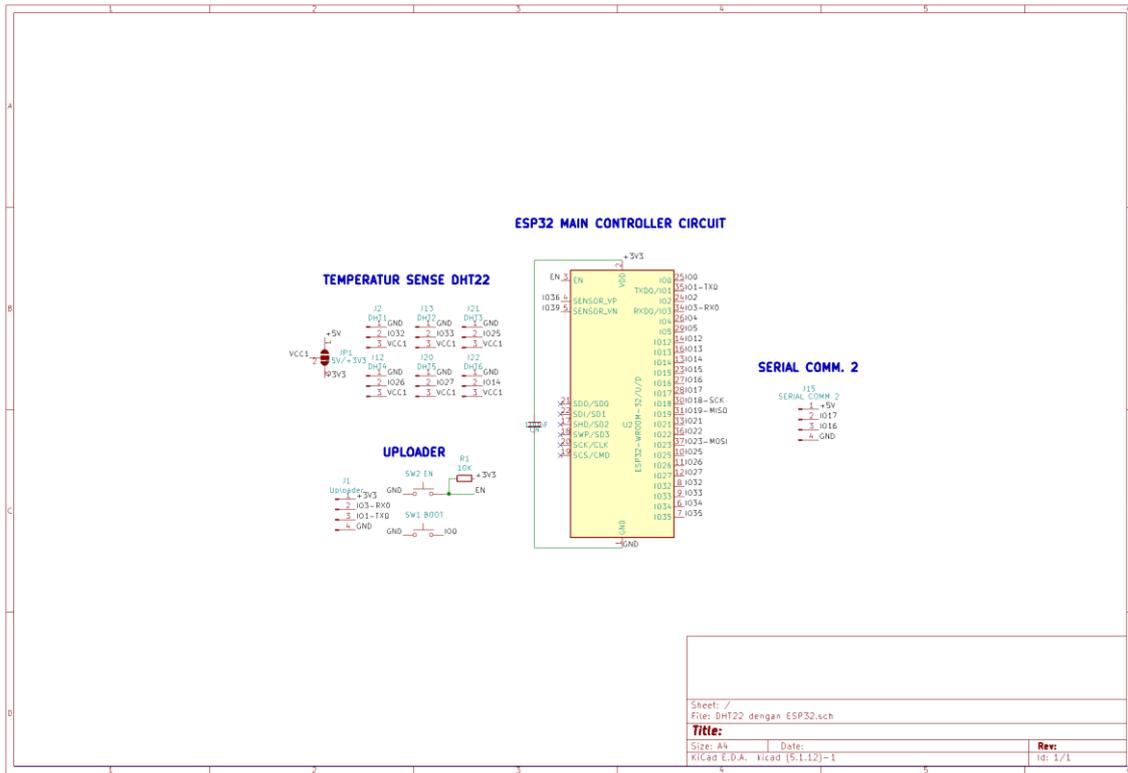
Magnetic_Door
1 int P1 = 12;
2
3 bool S1() {if (digitalRead(P1)==1){return true;} else {return false;} }
4
5
6 void setup() {
7   Serial.begin(9600);
8   Serial.println("Akses Door");
9   pinMode(P1, INPUT_PULLUP);
10 }
11
12 void loop() {
13   if(S1()){Serial.println("Pintu Terbuka");}
14   else{Serial.println("Nothing");}
15 }
```

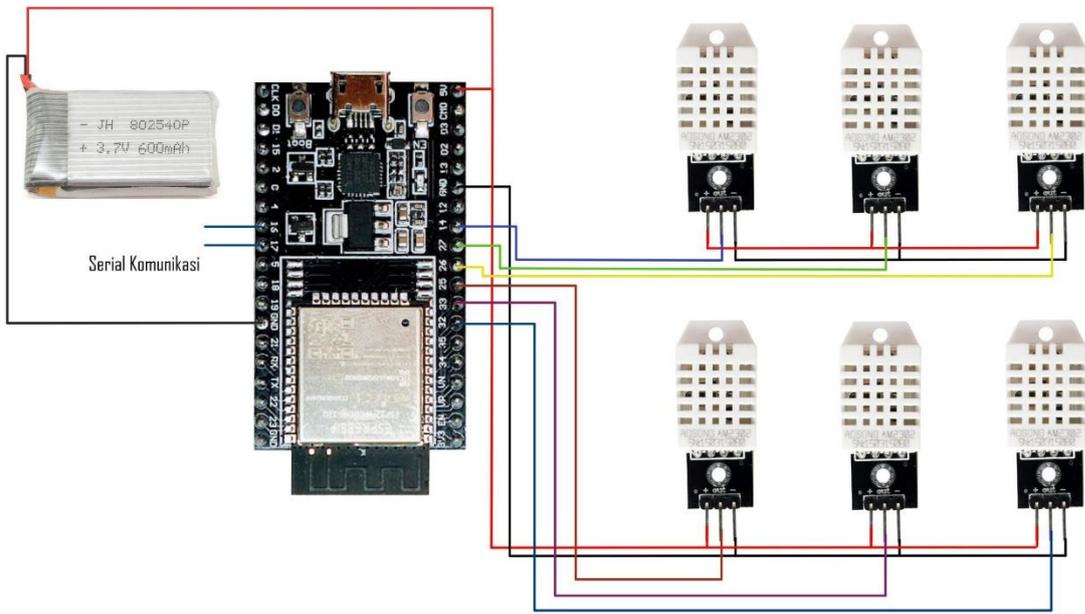
Done compiling

Sketch uses 243113 bytes (19%) of program storage space. Maximum is 1310720 bytes.  
Global variables use 16376 bytes (4%) of dynamic memory, leaving 311304 bytes for local variables. Maximum is 327680 bytes.

ESP32 Dev Module, Disabled, Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS), 240MHz (WiFi/BT), QIO, 80MHz, 4MB (32Mb), 921600, Core 1, Core 1, None, Disabled on COM3

# Monitoring Udara, Suhu dan Kelembapan



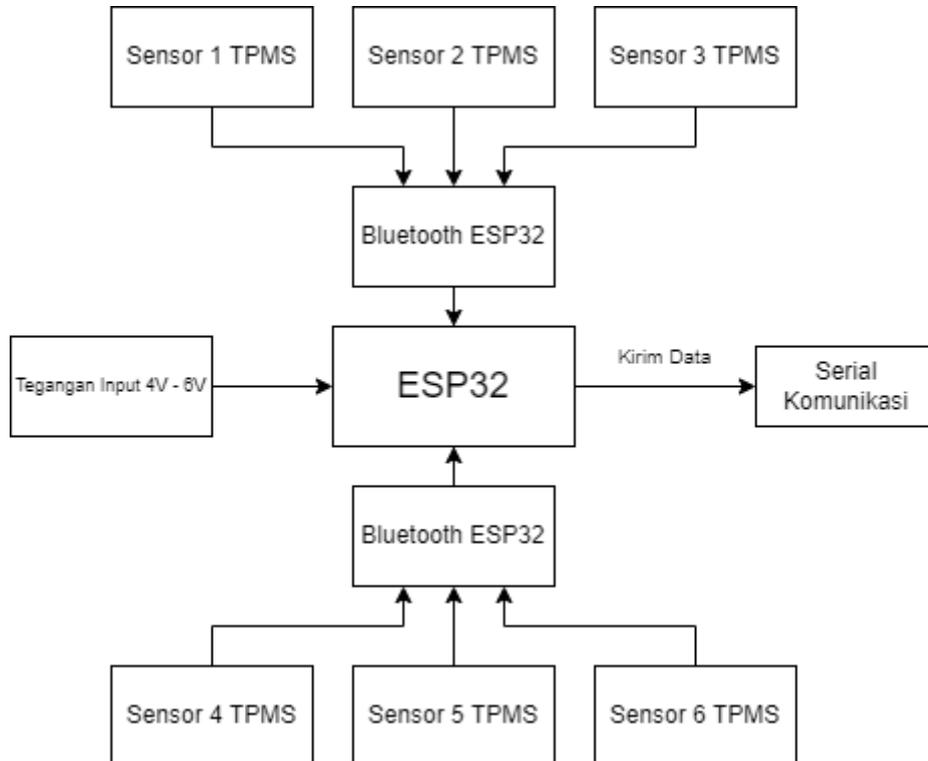
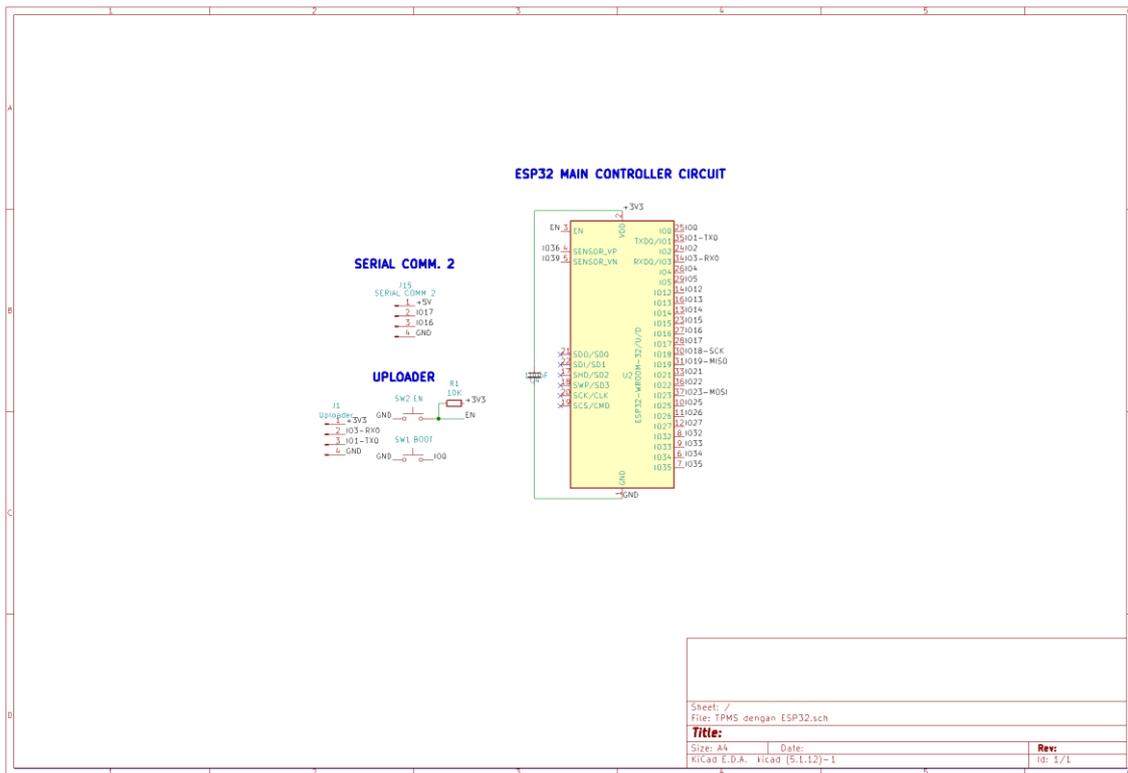




## AksesDHT11\_ESP32

```
1 #include "DHTeap.h"
2
3 //Menginisiasi pin DHT
4 const int DHT_PIN1 = 32;
5 const int DHT_PIN2 = 33;
6 const int DHT_PIN3 = 25;
7 const int DHT_PIN4 = 26;
8 const int DHT_PIN5 = 27;
9 const int DHT_PIN6 = 14;
10
11 DHTeap DHT1;
12 DHTeap DHT2;
13 DHTeap DHT3;
14 DHTeap DHT4;
15 DHTeap DHT5;
16 DHTeap DHT6;
17
18 //Flag jika DHT terpasang atau tidak
19 int aktifDHT1 = 0, aktifDHT2 = 0, aktifDHT3 = 0, aktifDHT4 = 0, aktifDHT5 = 0, aktifDHT6 = 0, totalDHT = 0;
20
21 //Inisiasi penyimpanan nilai data
22 int temp1 = 0, temp2 = 0, temp3 = 0, temp4 = 0, temp5 = 0, temp6 = 0;
23 int hum1 = 0, hum2 = 0, hum3 = 0, hum4 = 0, hum5 = 0, hum6 = 0;
24
25 void setup() {
26   Serial.begin(115200);
27   DHT1.setup(DHT_PIN1, DHTeap::DHT22);
28   DHT2.setup(DHT_PIN2, DHTeap::DHT22);
29   DHT3.setup(DHT_PIN3, DHTeap::DHT22);
30   DHT4.setup(DHT_PIN4, DHTeap::DHT22);
31   DHT5.setup(DHT_PIN5, DHTeap::DHT22);
32   DHT6.setup(DHT_PIN6, DHTeap::DHT22);
33 }
34
35 void loop() {
36   readDHT();
37   Serial.print("Temp1:"); Serial.print(temp1); Serial.print(" Hum1:"); Serial.println(hum1);
38   Serial.print("Temp2:"); Serial.print(temp2); Serial.print(" Hum2:"); Serial.println(hum2);
39   Serial.print("Temp3:"); Serial.print(temp3); Serial.print(" Hum3:"); Serial.println(hum3);
40   Serial.print("Temp4:"); Serial.print(temp4); Serial.print(" Hum4:"); Serial.println(hum4);
41   Serial.print("Temp5:"); Serial.print(temp5); Serial.print(" Hum5:"); Serial.println(hum5);
42   Serial.print("Temp6:"); Serial.print(temp6); Serial.print(" Hum6:"); Serial.println(hum6);
43 }
44
45 void readDHT() {
46   TempAndHumidity data_DHT1 = DHT1.getTempAndHumidity();
47   TempAndHumidity data_DHT2 = DHT2.getTempAndHumidity();
48   TempAndHumidity data_DHT3 = DHT3.getTempAndHumidity();
49   TempAndHumidity data_DHT4 = DHT4.getTempAndHumidity();
50   TempAndHumidity data_DHT5 = DHT5.getTempAndHumidity();
51   TempAndHumidity data_DHT6 = DHT6.getTempAndHumidity();
52
53   temp1 = data_DHT1.temperature; hum1 = data_DHT1.humidity;
54   temp2 = data_DHT2.temperature; hum2 = data_DHT2.humidity;
55   temp3 = data_DHT3.temperature; hum3 = data_DHT3.humidity;
56   temp4 = data_DHT4.temperature; hum4 = data_DHT4.humidity;
57   temp5 = data_DHT5.temperature; hum5 = data_DHT5.humidity;
58   temp6 = data_DHT6.temperature; hum6 = data_DHT6.humidity;
59
60   if(temp1 > 0){aktifDHT1 = 1;} if(temp1 == 2147483647){temp1 = 0, hum1 = 0;} if(temp1 == 0){aktifDHT1 = 0;}
61   if(temp2 > 0){aktifDHT2 = 1;} if(temp2 == 2147483647){temp2 = 0, hum2 = 0;} if(temp2 == 0){aktifDHT2 = 0;}
62   if(temp3 > 0){aktifDHT3 = 1;} if(temp3 == 2147483647){temp3 = 0, hum3 = 0;} if(temp3 == 0){aktifDHT3 = 0;}
63   if(temp4 > 0){aktifDHT4 = 1;} if(temp4 == 2147483647){temp4 = 0, hum4 = 0;} if(temp4 == 0){aktifDHT4 = 0;}
64   if(temp5 > 0){aktifDHT5 = 1;} if(temp5 == 2147483647){temp5 = 0, hum5 = 0;} if(temp5 == 0){aktifDHT5 = 0;}
65   if(temp6 > 0){aktifDHT6 = 1;} if(temp6 == 2147483647){temp6 = 0, hum6 = 0;} if(temp6 == 0){aktifDHT6 = 0;}
66
67   totalDHT = aktifDHT1 + aktifDHT2 + aktifDHT3 + aktifDHT4 + aktifDHT5 + aktifDHT6;
68 }
```

# Monitoring Tekanan Ban atau TPMS





tpmsv1 | Arduino 1.8.19

File Edit Sketch Tools Help

```

tpmsv1 $
1 // TPMS BLE "manufacturer data" format
2 // "000180eaca108a78e36d0000e60a00005b00"
3 // 0001 Manufacturer (0001: TomTom)
4 // 80 Sensor Number (80:1, 81:2, 82:3, 83:4, ..)
5 // 80eaca108a78 Sensor Address
6 // e36d0000 Pressure
7 // e60a0000 Temperature
8 // 5b Battery percentage
9 // 00 Alarm Flag (00: OK, 01: No Pressure Alarm)
10 //
11 // How calculate Sensor Address: (Sensor number):EA:CA:(Code binding reported in the leaflet) - i.e. 80:EA:CA:10:8A:78
12
13
14 // BLE Service
15 #include "BLEDevice.h"
16 BLEScan* pBLEScan;
17 BLEClient* pClient;
18
19 // Variables
20 static BLEAddress *pServerAddress;
21 // TPMS BLE SENSORS known addresses
22 String knownAddresses[] = { "83:ea:ca:40:07:13" , "81:ea:ca:20:05:43"};
23
24 static void notifyCallback(
25 BLERemoteCharacteristic* pBLERemoteCharacteristic,
26 uint8_t* pData,
27 size_t length,
28 bool isNotify) {
29 //Serial.print("Notify callback for characteristic ");
30 //Serial.print(pBLERemoteCharacteristic->getUUID().toString().c_str());
31 //Serial.print(" of data length ");
32 //Serial.println(length);
33 }
34 class MyAdvertisedDeviceCallbacks: public BLEAdvertisedDeviceCallbacks {
35 void onResult(BLEAdvertisedDevice Device) {
36 //Serial.print("BLE Advertised Device found: ");
37 //Serial.println(Device.toString().c_str());
38 pServerAddress = new BLEAddress(Device.getAddress());
39 bool known = false;
40 bool Master = false;

```

# IoT Gateway

